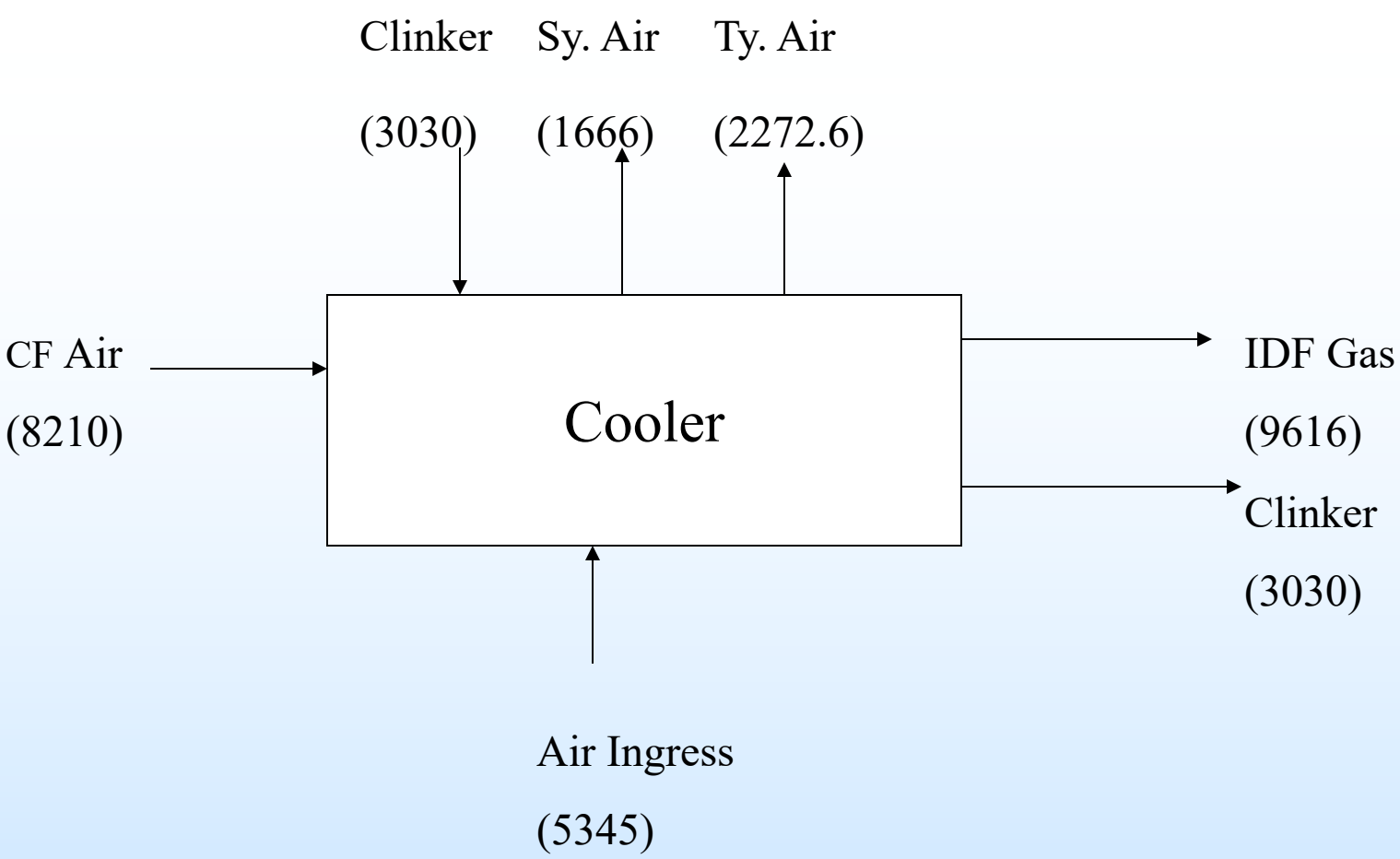


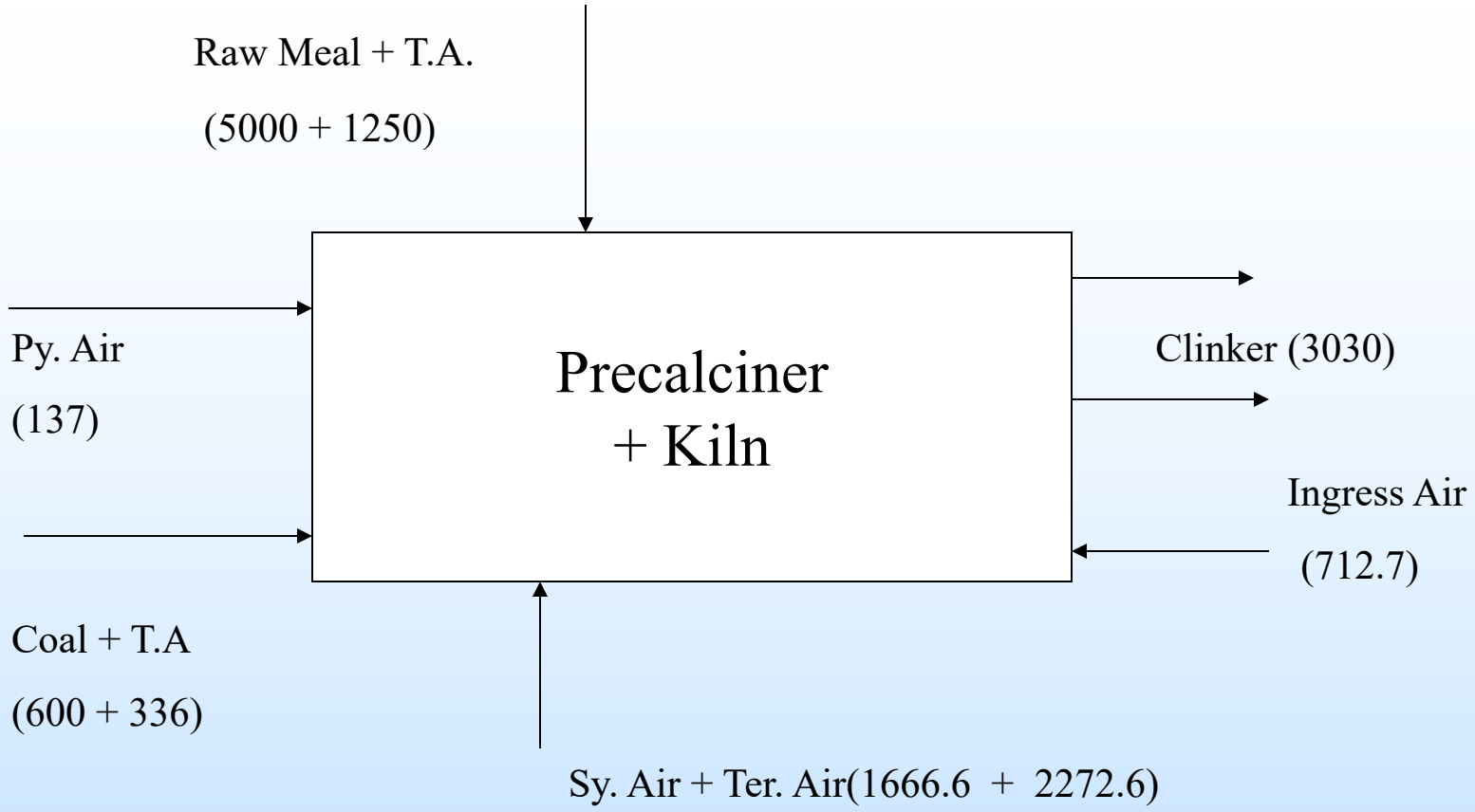
(Cooler unit)

CF - Cooler Fan; IDF - I.D.Fan;

Sy . - Secondary; Ty - Tertiary

Mass Balance in Cement Industry

Mass Balance - Precalciner and Kiln:



T.A. - Transport Air; WGF - Waste Gas Fan.

Energy Balance in Cement Industry

	Heat Input	kCal/kg	%
1	Heat in Combustion of fuel	892.58	96.64
2.	Sensible Heat in Fuel	1.27	0.14
3.	Sensible Heat in Feed	7.03	0.76
4.	Sensible Heat in Cooler Air	11.90	1.28
5.	Sensible Heat in Primary Air	0.24	0.26
6.	Sensible Heat in Infiltration Air	9.25	1.00
7.	Sensible Heat in trans. Air	1.28	0.14
	TOTAL	**923.55**	**100.00**

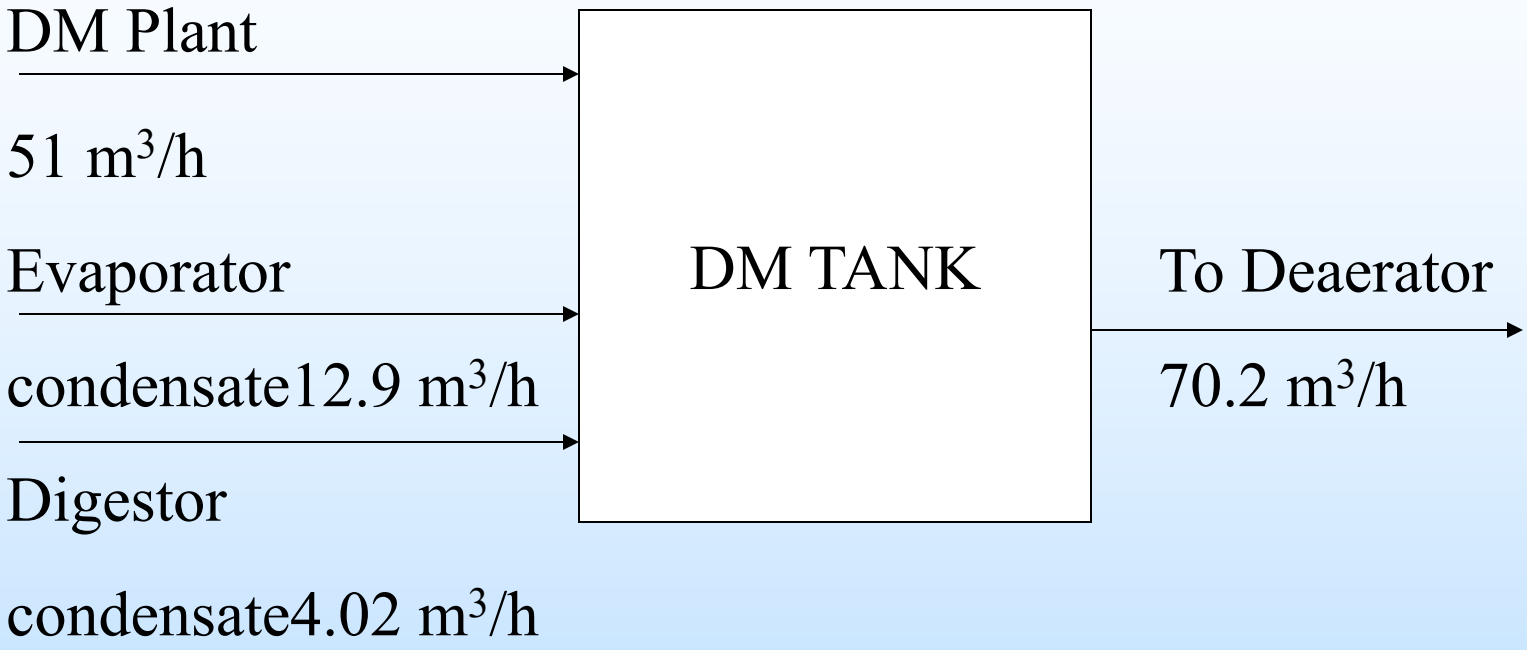
	Output	kCal/kg	%
1.	Heat of Clinker formation	437.38	47.36
2.	Exit gas Heat losses	240.94	26.08
3.	Heat of Evaporation of moisture	5.12	0.55
4.	Heat in exit Clinker	35.07	3.79
5.	Heat in Cooler Stack	135.79	14.70
6.	Heat in Dust	18.13	1.96
7.	Heat unaccounted	51.30	5.55
	TOTAL	**923.55**	**100.00**

STEAM BALANCE FOR A PAPER INDUSTRY

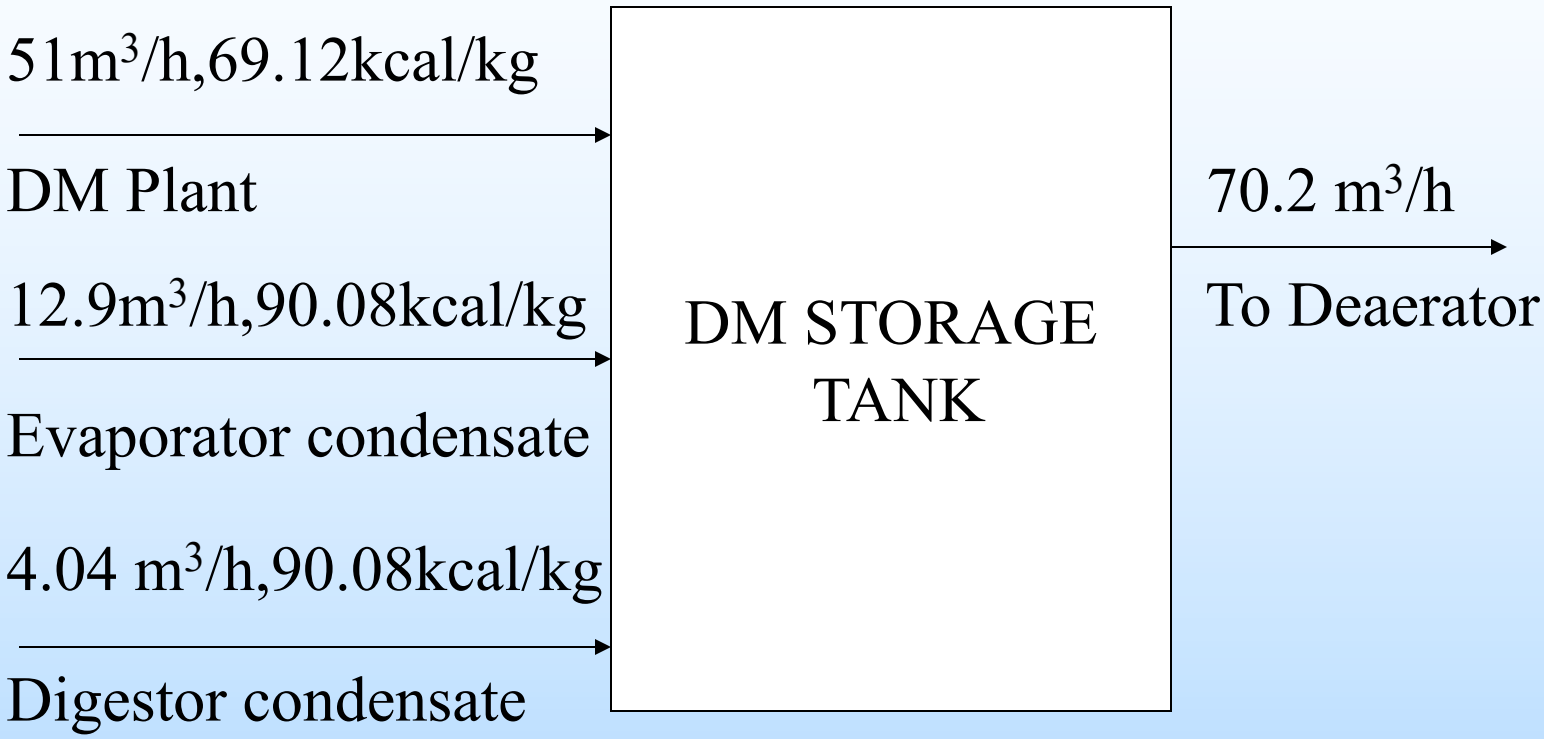
EQUIPMENT	65KG	45KG	12KG	5KG	LOSS
DEAERATOR					-30.00
FROM BOILER 65 ATA PRODN	-50.40				
SPRAY WATER TO PR Station	- 4.60				
45 I ATA Steam production		-50			
To DIGESTOR			-7.00		
To SRB AIR HEATER			-4.00		
To PAPER MACHINE				-20.00	
To L.P.VENT					- 12.00
To L.G.VENT					- 10.00
To VENT					- 5.00
To EVAP/GASIFIER/PULP MILL					
To CONDENSOR					- 10.00
TOTAL	55	+50	-13.00	-55	-37
Sum of Production	+105				
Sum of Consumption		-105			

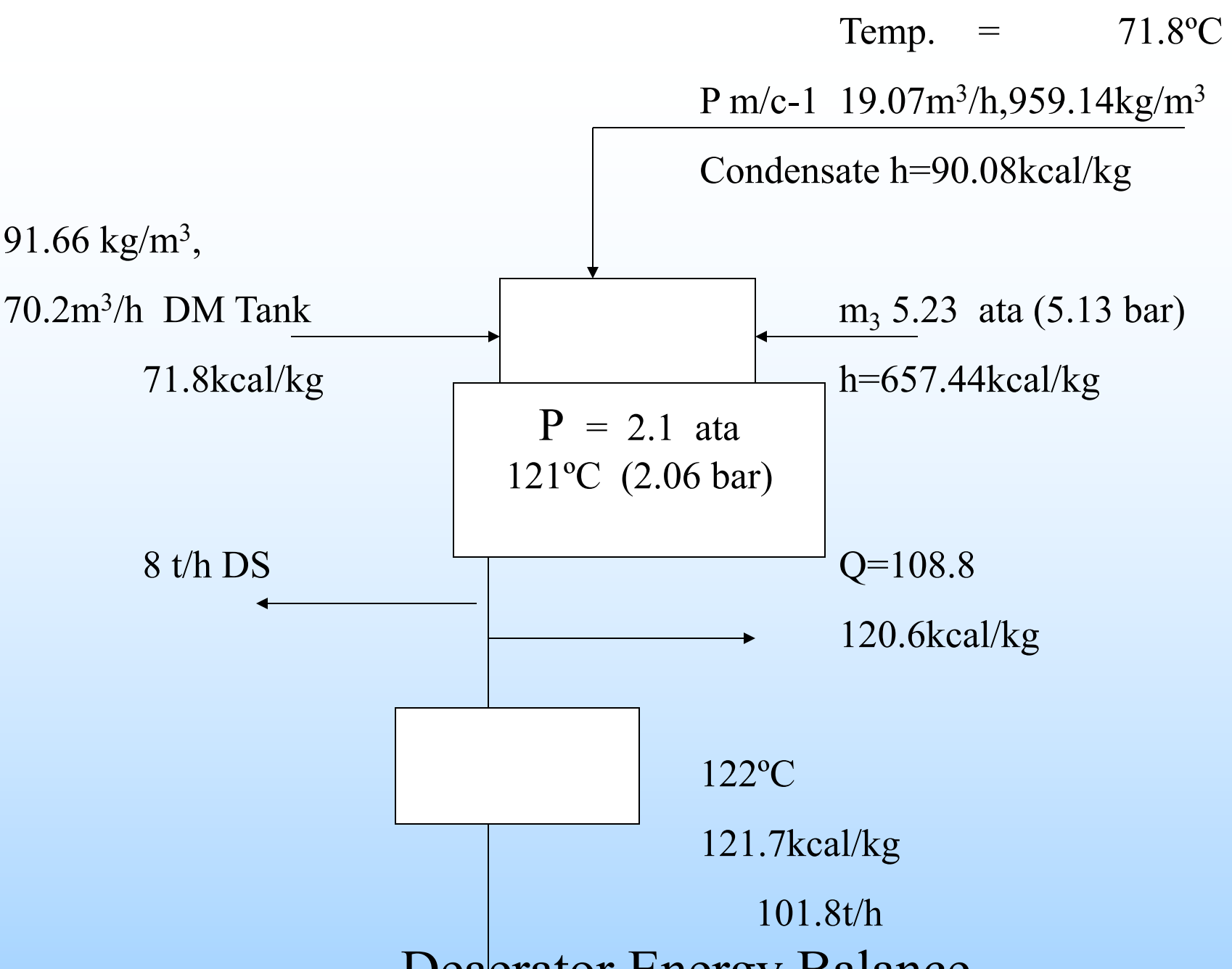
WATER BALANCE FOR A PAPER INDUSTRY

Description	Raw Water	Process Water	DM Water	Loss
Raw Water Input	2600.00			
To Clarifier Sludge				-20.00
Water Production			- 70.00	
To Township			-130.00	
To Paper Machines		-485.00		
To Pulp Mill Beach Plant		-920.00		
Evaporation Loss				- 5.00
To Fire Hydrant Header		- 1.00		
To Caustic Plant		- 50.00		
To Plant		- 5.00		
To Floor Washing		- 5.00		
To Evaporator		- 725.00		
To Process Consumption				-48.00
To Nacl Plant		- 45.00		
Water Recyled to Boiler		- 55.00		
System Loss				-40.00
Total	2600	-2287	-200	-113
Water Receipt	+2600			
Water Consumption		-2600		



DEAERATOR BALANCE


51m3/h,69.12kcal/kg
DM Plant
12.9m3/h,90.08kcal/kg
Evaporator condensate
4.04 m3/h,90.08kcal/kg
Digestor condensate
DM STORAGE TANK
70.2 m3/h
To Deaerator



Deaerator Energy Balance